



THE
ONTARIO WATER RESOURCES
COMMISSION

LAKEFRONT SURVEY

of

LAKE ONTARIO

within the

TOWN OF PORT CREDIT

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1964
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1964

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Report on lakefront survey of
Lake Ontario within the town of
Port Credit.

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REPORT

on

LAKEFRONT SURVEY

of

LAKE ONTARIO

within the

TOWN OF PORT CREDIT

Division of Sanitary Engineering

Ontario Water Resources Commission

December 1964

INDEX

<u>Section</u>	<u>Page</u>
INTRODUCTION	1
WEATHER OBSERVATIONS	1
ANALYSES	1
WATER QUALITY & EFFLUENT OBJECTIVES	2
LABORATORY RESULTS	
Industrial and Storm Water Discharges..	3
Watercourses.....	4
Lake Ontario	5
COMMENTS	5
RECOMMENDATIONS	6
ANALYTICAL RESULTS	
PLANS OF PORT CREDIT	

INTRODUCTION

An outfall and lake sampling survey was conducted within the boundaries of the Town of Port Credit to assess the progress made in the elimination of unsatisfactory discharges to Lake Ontario since the previous report entitled "Lakefront Survey of Water Quality, Waste Outfall and Drainage Inlets of Lake Ontario within the Area Town of Burlington to Scarborough Township, May 1962".

The report attempts to summarize the laboratory results of "grab" samples collected and presents comments on the corrective measures required to eliminate the discharge of contaminating wastes to Lake Ontario.

The survey was conducted by the Division of Sanitary Engineering of the OWRC and the laboratory results were reported by the OWRC laboratory.

WEATHER OBSERVATIONS

During and immediately prior to the 1961 water sampling survey and the present 1964 survey, appreciable precipitation did not occur and the flow in the storm water outlets and watercourses was assumed to represent dry weather flows.

ANALYSES

Routine sanitary chemical analyses, phenol determination and bacteriological examinations were performed on the samples collected. The laboratory results have been tabulated along with the results of all samples collected since

1960 and are appended to this report. Also, a map of the town showing the location of the samples has been attached.

WATER QUALITY & EFFLUENT OBJECTIVES

The following table indicates the objectives of the OWRC for all surface waters of the Province.

Achievement of these objectives should ensure that all riparian uses of the water may be realized.

5-day BOD	not greater than 4 ppm
MF Coliform Count	not greater than 2,400 per 100 ml

Phenolic Equivalents -

Average	not greater than 2 ppb ✓
Maximum	not greater than 5 ppb ✓

pH range	between 6.7 and 8.5 ✓
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The above objectives should be attained providing all outlets to watercourses comply with the following discharge objectives:

5-day BOD	not greater than 15 ppm
Suspended Solids	not greater than 15 ppm
Phenolic Equivalents	not greater than 20 ppb
pH range	between 6.7 and 8.5
Ether Solubles(oil)	not greater than 15 ppm

LABORATORY RESULTS

Industrial and Storm Water Discharges

Industrial and storm water discharges have been designated by a mileage point number followed by the letters "I" or "W" respectively. In the case where a relief sewer has been installed on a bypass at a sewage pumping station for use in the event of pump failures or when the capacity of the pumps has been exceeded the mileage point has been labeled with the letter "R".

Samples were collected from 11 such outfalls where a flow was noted and the outfall was located.

An improvement in the chemical and bacteriological characteristics was noted in the open cut (Station No.4) Regent Refining (Canada) Ltd., (L0-66.4I), the storm sewer at Oakwood Street (L0-67.7W), the storm sewer at Hiawatha Park Blvd., (L0-67.9W); and the storm sewer between 126 and 130 Cumberland Drive (L0-68.2W). Although improvements as noted have occurred the bacteriological examination of all samples continue to indicate high coliform counts in all outfalls except the open-cut at the Regent Refining plant where a remarkable improvement has been achieved. The phenol content in this discharge has been reduced from a high of 30 ppb to 2 ppb and there have been no ether soluble detected.

An exceptionally high coliform content was detected in the storm sewer discharge located between Helene and Ann Streets (LO-67.4W).

The industrial sewer discharge from the St. Lawrence Starch Company Limited (LO-67.6I) continues to exert a very high organic loading on the lake. Further, the rate of flow from this sewer has been estimated at greater than 1.0 mgd and the BOD has consistently exceeded 1000 ppm. The quantity, strength and the effect of this discharge on the water in Lake Ontario has been assessed in previous investigations by the OWRC. The most recent one being conducted on May 26, 1964. It was concluded that this outfall has exerted a serious detrimental effect on Lake Ontario.

Watercourses

Two watercourses drain to Lake Ontario within the boundaries of the Town of Port Credit and have been designated by the letter "D".

The Credit River (LO-67.0D) is the largest of the two and the laboratory results have generally indicated that the water quality has been satisfactory and therefore no impairment of the lake water should result during periods of dry weather flow. However, during the early spring this river is known to contain excessive phenol and bacteriological concentrations as a result of numerous discharges to this watercourse in the upper reaches. On such occasions a deteriorating effect on the lake may be anticipated.

The local watercourse located east of Highway No.10 (LO-67.5D) has been shown to contain excessive concentrations of contaminating material. A BOD of 64.0 ppm and suspended solids content of 47 ppm was present in the water at the time of the 1964 survey. Also, a coliform count of 270,000 per 100 ml was indicated. The phenol concentration exceeded the maximum surface water objective average of 2 ppb.

Lake Ontario

Six water sampling locations have been established along the shoreline. Only the one sample station opposite the easterly limits of the town was of satisfactory quality. All other samples contained coliform counts greater than 2,400 per 100 ml. The cause of this adverse bacteriological quality has been attributed to the high coliform contents in the noted discharges to the lake. In particular, the influence of the waste outfall from the St.Lawrence Starch Company adversely affected the lake water quality. A BOD of 245 ppm, suspended solids content of 52 ppm and a coliform count of 10 million per 100ml were obtained in the lake water sample designated as LO-67.6.

COMMENTS

Three of the 11 outfalls which were sampled indicated an improvement both chemically and bacteriologically since the previous 1962 report.

The effluent from the Regent Refining (Canada) Limited has been reduced chemically and bacteriologically to acceptable limits. An indication of the sincere efforts of this industry in this regard is gratifying. Similarly, while continued work is required to reduce the high bacteriological counts in other discharges, a definite decrease has been noted except at three locations. Improvements in the quality of the discharges from the storm sewer located between Helene and Ann Streets, the watercourse east of Highway No.10 and the St.Lawrence Starch Company outfall are required.

It is noted that the latter outfall discharges the greatest amount of contaminants to the lake within the borders of this municipality and also produces the most adverse effects on the lake. Further, to date, no action has been reported regarding the proposed elimination of this waste discharge.

RECOMMENDATIONS

1. The St.Lawrence Starch Company should proceed with the installation of satisfactory waste treatment facilities so that the discharge of highly contaminated wastes will be discontinued and thus terminate the gross polluting effect on the water quality of Lake Ontario.

2. Continued efforts should be made to reduce the coliform concentrations in other municipal storm sewer discharges and local watercourses.

All of which is respectfully submitted,

District Engineer:


H. Browne

Approved by:


K.H. Sharpe, Director

Prepared by: K.A.Reichert

ds

SAMPLING POINT NO.	LOCATION & DESCRIPTION	DATE	5-DAY BOD	TOTAL SOLIDS	SUSPENDED SOLIDS	TURBIDITY IN SILICA UNITS	MF COLIFORM COUNT/100 ML	EST. DWF	PHENOLS PPB	OIL PPM
L0-66.1	WEST OF REGENT REFINERY AT FOOT OF BEN MACHREE DR.	MAY 15/62 SEPT.23/62 SEPT.9/64	1.7	198	1		20,000 24,000		0 -	-
L0-66.1 W	18-INCH STORM SEWER OPPOSITE BEN MACHREE DR.	SEPT.20/60 OCT.9/60 NOV.26/61 JULY 17/64						NIL NIL NIL NIL		
L0-66.4	OFFSHORE FROM OPEN CUT- REGENT REFINING(CANADA)LTD.	SEPT.9/64	2.7	226	2		36,000		5	TRACE
L0-66.4 I	OPEN CUT(STATION No.4) - REGENT REFINING(CANADA)LTD.	SEPT.20/60 DEC.6/60 NOV.30/61 SEPT.4/62 JULY 17/64	38 28 2.4 2.0 3.2	308 220 252 192 262	24 20 -- -- 4	-- -- 3.1 12.0 --	22,000 0 2 600 270		25 30 8 6 2	TRACE TRACE 0 0 0
L0-66.7	NEAR PORT CREDIT W.W.'S INTAKE (SPLE 1200' OFFSHORE)	MAY 15/62 SEPT.23/62 SEPT.9/64	1.6	214	1		25,000 50,000		0 8	
L0-67.0	OPPOSITE MOUTH OF CREDIT RIVER	MAY 15/62 SEPT.28/62 SEPT.9/64	1.3	270	8		37,000 20,000		0 --	--
L0-67.0 0	CREDIT RIVER AT LAKESHORE RD.	SEPT.20/60 NOV.9/60 JAN.22/61 SEPT.14/61 NOV.30/61 AUG.23/62 SEPT.6/63 JULY 9/64 JULY 17/64	3.0 3.5 5.3 2.3 1.6 1.9 1.8 1.9 3.0	264 272 286 278 332 286 266 302	-- -- -- -- -- -- 9 5	3 1 3 4 3.9 9.0 11.0 --	300 15 72 <10 368 38,000 340		0 -- -- -- 2 0 0 --	
L0-67.0 R	RELIEF SEWER- STAVEBANK RD. S. SEWAGE PUMPING STA.	NOV.30/61 JULY 17/64	NOT LOCATED NOT LOCATED							
L0-67.2 W	18-INCH Ø STORM SEWER WEST SIDE OF ELIZABETH ST.	NOV.20/61 JULY 12/64						NIL NIL		

SAMPLING POINT NO.	LOCATION & DESCRIPTION	DATE	5-DAY BOD	TOTAL SOLIDS	SUSPENDED SOLIDS	TURBIDITY IN SILICA UNITS	MF COLIFORM COUNT/100 ML	EST DWF	PHENOLS PPB	OIL PPM
L0-67.4 W	45-INCH ϕ STORM SEWER BETWEEN HELENE & ANN STS.	SEPT. 19/60	5.4	264	8	--	300,000		0	
		NOV. 9/60	6.9	216	-	3	2,500		-	
		NOV. 30/61	6.6	406	-	11.5	90		6	
		AUG. 28/62	7.6	460	-	18	5,000,000		9	
		JULY 17/64	3.6	842	8	--	2,470,000		--	--
L0-67.5 D	LOCAL WATERCOURSE EAST SIDE HWY. NO. 10	SEPT. 19/60	13	312	12	--	256,000		4	
		NOV. 9/60	10	674	-	5			27	
		NOV. 30/61	9.2	834	-	4.5	296		8	
		AUG. 23/62	10	400	-	10.5	73,000		7	
		SEPT. 6/63	4.4	322	9				10	
		JULY 16/64	64.0	694	47	--	270,000		--	
L0-67.5 I	18-INCH ϕ SEWER EAST OF HWY. NO. 10	AUG. 23/62	3.0	248	--	2.1	22		0	
L0-67.6	NEAR ST. LAWRENCE STARCH CO. INDUSTRIAL SEWER OUTLET	MAY 15/62							0	
		SEPT. 23/62					3,300,000			
		SEPT. 9/64	245	518	52		10,000,000		--	--
L0-67.6 I	23-INCH ϕ INDUSTRIAL WASTE SEWER- ST. LAWRENCE STARCH CO.	SEPT. 20/60	1750	3026	264	--	4,800,000		0	
		NOV. 9/60	940	2018	210	--	680,000		--	
		NOV. 30/61	1040	1732	216	--	100		0	
		AUG. 23/62	1500	2366	1092	--	690,000		0	
		SEPT. 6/63	1400	3492	247				0	
		NOV. 26/64	2350	6748	1170	360				
		JULY 16/64	1220	1814	354	--	550,000		2	
L0-67.7 W	21-INCH ϕ STORM SEWER OAKWOOD ST.	SEPT. 19/60	30	334	6	--	279,000		9	
		NOV. 9/60	NOT SAMPLED							
		NOV. 30/61	2.3	342	--	3.3	28		2	
		JULY 16/64	0.6	324	4	--	19,900	2	--	--
L0-67.9 W	36-INCH ϕ STORM SEWER OPPOSITE HIAWATHA PARK BLVD.	SEPT. 19/60						NIL		
		NOV. 9/60						NIL		
		NOV. 30/61	35	628	--	43.0	187,000		25	
		JULY 16/64	1.0	364	1	--	5,600	2	--	--

SAMPLING POINT No.	LOCATION & DESCRIPTION	DATE	5-DAY BOD	TOTAL SOLIDS	SUSPENDED SOLIDS	TURBIDITY IN SILICA UNITS	MF COLIFORM COUNT/100 ML	EST. DWF	PHENOLS PPB	OIL PPM
L0-68.2 W	30-INCH ϕ STORM SEWER BETWEEN 126 AND 130 CUMBERLAND DR.	SEPT. 19/60	6.2	216	10	--	200,000		0	
		Nov. 9/60	7.8	190	-	6	7,500		-	
		Nov. 30/61	28	400	-	1.8	4		5	
		SEPT. 6/63	2.0	280	3				4	
		JULY 16/64	0.8	366	11	--	16,000	1.5	-	-
L0-68.2 R	8-INCH ϕ RELIEF SEWER BETWEEN 126 AND 130 CUMBERLAND DR.	SEPT. 13/60						NIL		
		Nov. 9/60						NIL		
		Nov. 30/61						NIL		
		JULY 16/64	0.8	384	2	--	16,000	0.5	-	-
L0-68.23	OPPOSITE PORT CREDIT EAST LIMITS	SEPT. 9/64	1.2	202	2		380		-	-



